

Rapid Bay Jetty Closure

its TRIPLE BOTTOM LINE impact to the Southern Fleurieu Region

Authors:

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Rapid Bay Jetty Closure – its TRIPLE BOTTOM LINE impact to the Southern Fleurieu Region

Status of jetty	Environmental impact	Social impact	Economic impact
Current situation	No immediate impacts to the jetty communities ¹ . Potential impact from displaced fishing effort to other shore-based fishing sites, e.g Second Valley.	Major negative impact on recreational fishers (complete loss of jetty access) Significant impact to recreational divers.	Major impact arising from loss of recreational fishing and to a lesser extent dive related business.
No action leading to longer term jetty collapse – diving permitted	As above but medium-term improvement in fish abundance and size due to lack of fishing effort but long-term decline of shaded habitat with shifts in fish communities and eventual loss of leafy seadragons.	Major negative impact on recreational fishers (complete loss of jetty access) Medium term benefits but longer term losses for recreational divers.	As above.
Longer term impact of no action leading to jetty collapse – diving banned due to OH&S issues	As above	Major negative impact on recreational fishers and divers (complete loss of jetty access)	As above but with greater loss of dive related business.
Jetty removal	Loss of unique fish community and leafy seadragons.	As above	As above plus cost of jetty removal.
Jetty replacement	As above	Facility provided for recreational fishing – may be adequate for fishing pelagic species. Unlikely to be an adequate replacement for recreational divers	Loss of dive related business but some fishing related business restored.
Jetty repair	At least would return to pre-2005 state and with a fishing exclusion area might see “enhancements” to the fish community.	Return to 2005 state for recreational fishing/diving, and a fishing exclusion area (e.g. around the T) would enhance the diving experience.	Cost of jetty repair
Jetty development (towards Busselton)	As above.	Return to 2005 state for recreational fishing/diving and a fishing exclusion area (e.g. around the T) would enhance the diving experience. Observatory would provide non-divers with opportunities for viewing marine life.	Costs of development offset by increased tourism

¹ Of some environmental relevance is the loss of access for education reasons to leafies as a “flagship” species for marine conservation and the general “aquarium” values of the dive site.

Summary of the significance of the jetty to the region

- The jetty provides habitat that supports a diverse and abundant fish community, with a rare mixture of shallow and deep water fish as well as territorial and pelagic fish. There are twice as many fish species compared with (on average) coastal sites across the state. Features include rare species such as angler fish, nursery area for many species and fish cleaning stations (refer to Appenix 2 for a the report by Dr Scoresby Shepherd, Senior Reseach Fellow, SARDI Aquatic Sciences). The jetty pylons house a diverse range of invertebrates that have been the subject of many University studies.
- The region has significantly marketed it self in conjunction with the Leafy Seadragon. The Leafy Seadragon is most visible and accessible from the Rapid Bay Jetty. 21 per cent of all Leafy seadragon reported sightings to Dragon Search² are from the Rapid Bay Jetty.
- In a recent study, the Rapid Bay Jetty was identified after seacoast/beaches as the most used facilities by the non-residents (55% of respondents). Yankalilla residents also indicated a high usage of the Rapid Bay Jetty, third on the list, after beaches, and Library Borrowing Facilities (44% of respondents). Improving jetties in general was identified by both the resident and non-resident communities as the most important issue for community facilities to their area (refer Appendix 1 for the relevant tables from the “Keeping Pace” study by University of Adelaide)
- Rated in the top 25 dive sites in Australia by a recognised leading travel authority and rated as the eight best shore dive in Australia by *Scuba Diver Australasia*. It is widely described as one of the best jetty dives if not the best in Australia. It is an ideal site for dive courses. Access via the jetty is a key factor for divers and the infrastructure of the jetty provides habitat for the Leafy Seadragon.
- It has been estimated that the annual economic impact of the jetty from the patrons of the Rapid Bay Campground to the Southern Fleurieu Region is from \$215,000 and up to \$715,000.

Key recommendation

While this report gives an indication of the economic impact of the jetty to this region, the analysis does not capture all patrons to the jetty. Jetty users who are patrons to the Rapid Bay Campground are only captured in this study. A more detailed study does need to happen to provide a better reflection of the economic impact of loss of the jetty.

Also this more detailed study need to capture the roll on effect to the dive location, the Hobart. A key attraction to this area is the significance of been able to dive at two spots with ecological significance and interest. It is therefore predicated that less divers will dive at the Hobart, without the Rapid Bay Jetty. This will therefore result with a compounding economic impact to this region.

² Dragon Search is a community monitoring program, where divers report sea dragon sighting.

Economic significance

Tourism can impact upon a community and a region in a number of ways. From an economic perspective, these impacts are generally felt through the generation of income to both businesses and individuals, and the associated creation of employment.

Tourism development projects will generate indirect or flow-on effects that may be larger than expenditures on the project itself. For example the economic benefit attributed directly from the Jetty, means businesses directly benefiting from the tourism development will provide economic flow on effects to the region. For example the flow on effect of tourism industry in the area – growing diversity in the local economy indicated by a growing number of residents employed in retail trade, in accommodation, cafes etc. and other service industries.

The Rapid Bay Jetty is a tourist icon to this region. The economic significance of this jetty will be estimated, in relation to it's impact on the local community.

Visitors to the Rapid Bay Jetty

Table 1 identifies campground patrons purpose of visit to Rapid Bay. The two main users of the Jetty are divers and fishers.

Key findings from Table 1:

- Over two thirds of divers accessed this dive spot through the use of the jetty. This substantial reduces the cost to dive this spot, and therefore makes this a very popular dive location. This is re-enforced through Scuba Diver Australasia places Rapid Bay as the eighth best shore dive in Australia.
- 16,584 anglers visited this jetty from October 2003 to September 2004. This figure is re-enforced with the Keeping Pace report that identified the Jetty after seacoast/beaches as the most used facilities by the non-residents in the Yankalilla area. Yankalilla residents also indicated a high usage of the Rapid Bay Jetty, third on the list, after beaches, and Library Borrowing Facilities.
- 30 per cent of Rapid Bay visitors are from interstate or overseas.

Table 1: Purpose of Visit, Rapid Bay 2003/04

	Campers	Average stay days	Jetty Anglers	Day Trippers	Divers Shore / Boat	Origin of Visitor		
						SA	Inter-state	Int'l
Oct 03	448	-	1124	200	24/26	336	85	27
Nov 03	496	-	1400	230	30/23	298	139	59
Dec 03	657	1.2	2200	200	40/26	477	138	42
Jan 04	1252	1.8	2100	315	30/32	869	140	63
Feb 04	764	1.5	3200	230	80/10	537	189	38
Mar 04	551	-	1400	90	30/5	385	130	36
Apr 04	1226	1.3	2700	270	65/13	787	282	38
May 04	151	1.2	800	45	24/8	95	49	4
Jun 04	58	1.1	320	60	-	42	17	-
Jul 04	72	-	360	40	-	48	11	13
Aug 04	75	-	470	70	21/5	48	14	13
Sep 04	124	-	510	48	30/7	74	28	22
Total	5874	1.4	16,584	1798	374/155	3996	1222	355

Source: Campground management cited in the *Rapid Bay Campground and Foreshore, Business Plan 2004-08*, prepared for the District Council of Yankalilla, October 2004, p. 6.

This table provides a good indication of the users of the Rapid Bay Jetty, and a useful data set for camp ground patron's purpose of visit. But this data does not capture other visitors to the jetty who do not use the campground facility.

For the purpose of this study an estimated economic impact of the loss of the jetty has been based on campground patron's purpose of visit.

Projected economic impact of the jetty

It is quite clear that without the jetty fishers will not visit Rapid Bay. As the region has significantly few access points through jetties, there is really no significant alternative. Also an attraction of the Rapid Bay Jetty is its access to deep water.

The importance of the jetty to divers is that it makes this dive spot very accessible. An analogy given by a local dive teacher, 'a ski slope with out a ski lift'.

Divers

Based on the data collected from the Rapid Bay campground management a total of 374 dives, access to dive spot from the Jetty, were recorded between 2003/04 (October 2003 to September 2004). As this data was collected by the campground management at Rapid Bay it could be assumed that this figure would be a conservative reflection of the number of divers that dive from the Rapid Bay Jetty. This is because only a proportion would utilise the campground facility, and therefore those divers not using this facility are not included in this data.

This study has taken the approach of estimating a range of the potential economic impact on the region from the loss of the Rapid Bay Jetty. Based on the Campground Management data, if 30 percent of the divers, accessing the dive spot through the jetty, not by boat, decided to no longer dive at Rapid Bay due to the loss of the jetty, the loss of income to the region would be approximately \$35,000. At the other end of the scale, if all of the divers accessing the dive spot through the jetty no longer dived in this region, the loss of income to the region would be approximately \$115,000. However, it does need to be strongly noted that these figures are very conservative, this is because diver numbers only include the divers who use the Rapid Bay campgrounds.

A range has been estimated, as a proportion of divers who use to access the dive spot by jetty may now decide to access the dive spot through a boat. But due to this additional expenditure, it is unknown how many divers will be prepared to pay this cost. Also some divers may be prepared to snorkel to the dive spot from the beach. It is unknown what the impact of the loss of the jetty will be from divers and whether they still choosing to dive at Rapid Bay. However, with the wider community aware of the closure of the jetty, many appear to be staying away, presumably choosing to dive at other locations (pers. comm., Greg Perry, Dolphin Dive).

The data to estimate this impact was based on the same expenditure pattern assumption that was conducted for the Hobart - 'Economic Impact of the Fleurieu Peninsula Artificial Reef Proposal'. The data used for these assumptions, was based on costing of dive related expenses and expenditure patterns to visitors to the Fleurieu Peninsula at the time of this study, which was done in the late 1990s. Therefore the estimated figures (in Table 2) are based on conservative data since this the Hobart study the costing of dive related expenses would have increased.

Table 2: Economic Impact for the loss of the Rapid Bay Jetty from Divers no longer diving at this site.

	30% -112 divers	50% - 187 divers	100% -374 divers
Loss of income to the region	\$35,000	\$57,000	\$115,000

Recreational fishers

Data collected from the Rapid Bay campground management indicates a total of 16,584 fishers visited this jetty from October 2003 to September 2004. As this data was collected by

the campground management at Rapid Bay it could be assumed that this figure would be a conservative reflection of the number of fishers that dive from the Rapid Bay Jetty. This is because only a proportion would utilise the campground facility, and therefore those fishers not using this facility are not recorded.

With 16,584 fishers visits to this jetty from October 2003 to September 2004, this equates to 2,719 actual fishers use the jetty. This is because on average each fisher spends 6.1 days (www.affa.gov.au accessed 160205) fishing. Fishers spend on average of \$452 each a year (www.affa.gov.au accessed 160205). This figure includes fishing related equipment and activities. For the purpose of this study, boat related expenditure, which amounted to half of the expenditure, is subtracted from the total average. Not all of this figure of \$226 could be attributed to expenditure within the region, because the figure may include purchase of new gear purchase out of the region. Therefore the approach adopted is to apply varying proportions of this average expenditure pattern to determine the estimated economic impact of not been able to access the jetty.

It has been estimated that the loss of income from the angler population, from not been able to access the Rapid Bay jetty, and therefore fish outside the region, as between \$180,000 and \$600,000 (see Table 3). If we assume that 30 percent on average of the annual average expenditure of fishers visiting Rapid Bay jetty was spent within the region prior to the loss of the jetty, the loss of income to the region would be approximately \$180,000. At the other end of the scale, if all of the expenditure of fishers that used to visit Rapid Bay could be attributed to the region, the loss of income to the region would be approximately \$600,000. The mid-range the figure loss of income to the region would be \$300,000.

Table 3: Economic Impact for the loss of the Rapid Bay Jetty from fishers no longer been able to use this site

	% of average fishers expenditure spent locally.		
	30%	50%	100%
Loss of income to the region	\$180,000	\$300,000	\$600,000

Total Economic Impact of the loss of Rapid Bay Jetty to the Southern Fleurieu Region

Therefore the total economic impact for both the loss of divers and anglers in the region, due to the loss of the Rapid Bay Jetty has been estimated annually between \$215,000 and \$715,000 (see Table 4). This loss of income only encompasses Rapid Bay campground patrons.

Table 4: Total Economic Impact of the loss of Rapid Bay Jetty to the Southern Fleurieu Region

	30 percent	50 percent	100 percent
Divers	\$35,000	\$57,000	\$115,000
Fishers	\$180,000	\$300,000	\$600,000
Total	\$215,000	\$357,000	\$715,000

Key recommendations

While this report gives an indication of the economic impact of the jetty to this region, the analysis does not capture all patrons to the jetty. Jetty users who are patrons to the Rapid Bay Campground are only captured in this study. A more detailed study does need to happen to provide a better reflection of the economic impact of loss of the jetty.

Also this more detailed study need to capture the roll on effect to the dive location, the Hobart. A key attraction to this area is the significance of been able to dive at two spots with ecological significance and interest. It is predicated that less divers will dive at the Hobart, without the Rapid Bay Jetty. This will therefore result with a even greater economic impact to this region.

Social Significance

The Rapid Bay Jetty is seen as a significant community and recreation facility to the Southern Fleurieu Region.

This was re-iterated in the Keeping Pace Report, undertaken in 2004 by the University of Adelaide. The survey findings illuminated:

- The Rapid Bay Jetty was identified after seacoast/beaches as the most used facilities by the non-residents in the Yankalilla area – 55 per cent of respondents indicating use of the Jetty (see Appendix 1: Table 5).
- Yankalilla residents also indicated a high usage of the Rapid Bay Jetty, third on the list, after beaches, and Library Borrowing Facilities – 44 per cent of respondents indicating use of the Jetty (see Appendix 1: Table 6).
- Improving jetties in general was identified by both the resident and non-resident communities of the Southern Fleurieu Region as of the highest importance for community and sporting facilities to their area (see Appendix 1: Table 7 and 8).
- Rated in the top 25 dive sites in Australia by a recognised leading travel authority and rated as the eight best shore dive in Australia by *Scuba Diver Australasia*. It is widely described as one of the best jetty dives if not the best in Australia. It is an ideal site for dive courses. Access via the jetty is a key factor for divers and the infrastructure of the jetty provides habitat for the Leafy Seadragon.

Environmental Significance

Summary of the current marine life under the jetty....

- High species diversity with twice the number species found on average at coastal sites.
- Greater abundance than other coastal sites.
- Rare mixture of shallow and deep water fish as well as territorial and pelagic fish.
- Nursery for many species.
- Significant site for protected leafy seadragon.
- Rare species including black-throated threefin and anglerfish.
- Fish cleaning stations.
- Diverse range of invertebrates on the jetty pylons

A report by Dr Scoresby Shepherd, Senior Research Fellow, SARDI Aquatic Sciences, is included as Appendix 2. This states in part that:

The fish fauna under Rapid Bay Jetty (RBJ) is remarkable. It has twice as many species than found on average at 46 sites During surveys of coastal reef fishes on the South Australian coast during the period 2001-5, a standardised survey technique has been used, involving four 100 m transects in which fish species and their sizes are recorded in a 5 m swathe. So far, 46 sites have been surveyed in southern Gulf St Vincent and Investigator Strait, as well as many sites on Eyre Peninsula. Here a comparison is made between the fishes under RBJ and the fishes of lower Gulf St Vincent and Investigator Strait.

The fish fauna under RBJ is very rich in terms of numbers, and diverse in terms of species richness, and comprises a comparative diversity hotspot for the region. This is apparently due to the fact that both shallow water reef species and deeper water fishes congregate there in the reduced light. It is also a nursery haven for juveniles of some species, and contains a number of fish cleaning stations. Such stations are known to be biologically important for the health of fish assemblages.

Appendix 1: Social Significance Tables

Table 5: Community and Recreation Facilities Used by Non-residents while Staying in the Southern Fleurieu Region

Type of Facility	Per cent of Respondents Indicating Use
Sea coast/beaches	64.9
Rapid Bay Jetty	55.1
Walking Trails	54.8
Recreation Park	41.6
Art Gallery	25.8
Open Air Exhibition	22.5
Bike Trail	19.4
Cinema	9.8
Library/borrowing facility	9.0
Library/internet	2.8
Library/computer	2.2

Source: Yankalilla Property Owners Survey, 2003 cited in the *Keeping Pace Report*, (2004) prepared by the University of Adelaide, p. 63.

Table 6: Community and Recreation Facilities and Services Used by Permanent Residents since Living in the Southern Fleurieu Region

Use of	Percentage Indicating 'Yes'
Beaches	85.3
Library Borrowing Facilities	64.3
Rapid Bay Jetty	44.4
Recreation Parks	42.8
Walking Trails	33.8
Cinema/Live Theatre	22.3
Library Computer Facilities	21.3
Art Gallery	17.2
Bike Trails	15.8
Playgroup	14.2
Open Air Exhibition	13.6
Adult Education	12.8
Community Centre	12.5
Personal recreation course	11.4
TAFE	9.5
Other Internet provider	9.3
Child care facilities	8.2
Concert facilities	6.8

Source: Yankalilla Permanent Resident Survey, 2003 cited in the *Keeping Pace Report*, (2004) prepared by the University of Adelaide, p. 64.

Table 7: Community Facilities Needed by Non-Residents

Community Facilities Needed	Per cent of Respondents
Improve jetty	22.9
Cinema	12.5
Boat Ramp	10.4
Walk/Cycling Trails	8.3
Community centre	8.3
Youth recreation	8.3
Larger Library	6.3
Other	22.9
Total Respondents	100.0 (n=48)

Source: Yankalilla Property Owners Survey, 2003 cited in the *Keeping Pace Report*, (2004) prepared by the University of Adelaide, p. 64.

Table 8: Community and Sporting Facilities Needed by Permanent Residents

Community Facilities Needed	Per cent of Respondents
Improve jetty	20.2
Community Centre/Theatre	19.2
Walk/Cycling Trails	9.6
Cinema	8.7
Larger Library	8.7
Bus Service	8.7
Boat Ramp	7.7
Youth recreation	6.7
Other	10.6
Total Respondents	100.0 (n=104)

Sporting Facilities Needed	Per cent of Respondents
Swimming Centre	61.2
Badminton/Squash	10.7
Boat Ramp	8.7
Gym/fitness	6.8
Other sports/facilities	12.6
Total Respondents	100.0 (n=103)

Source: Yankalilla Permanent Residents Survey cited in the *Keeping Pace Report*, (2004) prepared by the University of Adelaide, p. 65-6

Appendix 2: Report on the fishes under the Rapid Bay Jetty

By Dr S.A. Shepherd

Senior Research Fellow, South Australian Research and Development Institute, West Beach,
5024.

Dated 5 February 2005.

The fish fauna under Rapid Bay Jetty (RBJ) is remarkable. During surveys of coastal reef fishes on the South Australian coast during the period 2001-5, a standardised survey technique has been used, involving four 100 m transects in which fish species and their sizes are recorded in a 5 m swathe. So far, 46 sites have been surveyed in southern Gulf St Vincent and Investigator Strait, as well as many sites on Eyre Peninsula. Here a comparison is made between the fishes under RBJ and the fishes of lower Gulf St Vincent and Investigator Strait.

1. The mean number of species recorded per site (=4×100 m transect) for the region is 15.0 (s.e. 0.7) for 46 sites. In contrast under RBJ the number of species recorded was 30, and since that survey in December 2004 four more species have been recorded. The abundance of fishes under RBJ is also high. At the 46 sites referred to, the total number of fishes per 2000 m² ranges from 55-501 whereas 617 were recorded under RBJ per 2000 m². On other occasions very large schools of 1000-2000 fish have been seen. The sites most similar in terms of fish abundance and diversity to RBJ are Haystack and Althorpe Is at the entrance to Investigator Strait.
2. The species list includes the protected leafy seadragon, which is relatively numerous, and some deeper water species rarely seen inshore. They include: silverbelly, black-spotted wrasse, rough leatherjacket, western cleaner clingfish, four cave-dwelling species of bullseyes, and the rare black-throated threefin. Other species present are the pelagic species, snook, long-finned pike, and yellowtail.
3. The site is a nursery for a number of species. Very large numbers of juvenile red mullet, black-spotted wrasse, bullseyes, as well as other unidentified species occur in the rubble and concrete cladding scattered on the seabed under RBJ.
4. Another phenomenon of great biological interest is the presence of fish cleaning stations near some piles. The cleaner fish are the black-spotted wrasse and the western cleaner clingfish, and host species, which come to be cleaned of ectoparasites, include zebra fish, magpie perch, wrasses, silver drummer and other species. Studies on these symbioses are on-going.

CONCLUSIONS

The fish fauna under RBJ is very rich in terms of numbers, and diverse in terms of species richness, and comprises a comparative diversity hotspot for the region. This is apparently due to the fact that both shallow water reef species and deeper water fishes congregate there in the reduced light. It is also a nursery haven for juveniles of some species, and contains a number of fish cleaning stations. Such stations are known to be biologically important for the health of fish assemblages.